ABSTRACT OF THE DISCLOSURE

The steel drill string attached to a drilling bit during typical rotary drilling operations used to drill oil and gas wells is used for a second purpose as the casing that is cemented in place during typical oil and gas well completions. Methods of operation are described that provide for the efficient installation of a cemented steel cased well wherein the drill string and the drill bit are cemented into place during one single drilling pass down into the earth. Methods are provided to selectively cause a drilling trajectory to change during drilling with casing. A one-way cement valve is installed near the drill bit of the drill string that allows the cement to set up efficiently under ambient hydrostatic conditions while the drill string and drill bit are cemented into place during one single drilling pass into the earth.